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**Notice of Allowability**

Application No.

10/664,846

Applicant(s)

NARINSKY, GEORGE B.

Examiner

Richard L. Leung

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 8 August 2005 and examiner's amendment.
2. ☒ The allowed claim(s) is/are 1-13.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 13 June 2005.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with William Haefliger on 18 August 2005.

The application has been amended as follows to correct informalities and cancel withdrawn claims:

Claim 8 (currently amended). The method of claim 7 wherein the fluid pressure in the distillation column is 6 bara (87 psia); a compressor is employed to compress the methane enriched gas stream in step e), the compressor having a discharge pressure [[is]] of 15 bara (217 psia); the vapor mole fraction of the partially vaporized initial LNG at introduction to the distillation column is 0.84%; the number of theoretical trays in the distillation column is 12, including 4 trays in the tower upper section, and 8 trays in the tower lower section.

Claim 11 (currently amended). A process for enriching LNG in methane, comprising the steps:

a) feeding an initial LNG stream to a heat exchanger wherein the LNG stream partially vaporizes,

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- b) feeding the partially vaporized initial LNG stream into a middle region of a distillation column that has a concentration section and a stripping section,
- c) operating the distillation column to separate the partially vaporized initial LNG stream into a methane enriched overhead gas stream and into an ethane enriched liquid product stream,
- d) warming the methane enriched gas stream,
- e) compressing the warmed methane enriched gas stream in a methane compressor having a discharge pressure, and cooling the compressed methane enriched gas stream to a temperature at or near ambient,
- f) further cooling the compressed and cooled methane enriched gas stream to liquid state,
- g) and distributing the compressed and liquefied methane enriched gas stream into two streams, one of which is expanded and then introduced to the top of the distillation column as a reflux, and the other of which is expanded and provided as a methane product,
- h) ~~and wherein due to increase in the temperature difference at the warm end of the heat exchanger the methane compression discharge pressure of a provided and operated methane compressor decreases~~ the methane compressor discharge pressure decreases.

Claim 14 (cancelled).

Claim 15 (cancelled).

Claim 16 (cancelled).

The following claims have been renumbered:

Claim 4 has been renumbered 6.

Claim 5 has been renumbered 4.

Claims 6-12 have been renumbered 7-13, respectively.

Claim 13 has been renumbered 5.

2. The following changes to the drawings have been approved by the examiner and agreed upon by applicant: replacement figures complying with the requirements set forth in Office action dated 13 June 2005 must be submitted. In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

3. The following is an examiner's statement of reasons for allowance: The amendment to the claims has overcome the previously presented rejections and objections, and a further search of the prior art has failed to reveal any clear teaching or strong suggestion of Applicant's claimed invention. While numerous methods and systems for processing liquefied natural gas (LNG) to produce enriched methane products are already known in the art, as demonstrated by the references cited previously and below, there is no disclosure or teaching of a method having all the limitations recited by the independent claims. The cited prior art fail to show, either alone or in an obvious combination, a process comprising all the steps set forth by the claims. Accordingly, the claims are considered allowable.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 3837172 (Markbreiter et al.): discloses a method of processing liquefied natural gas to produce a methane-enriched product.

US 5359856 (Rhoades et al.): discloses a process for purifying liquid natural gas to produce a methane product.

US 6907752 B2 (Schroeder et al.): discloses a method for processing liquid natural gas.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard L. Leung whose telephone number is 571-272-4811. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl J. Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard L. Leung  
Examiner  
Art Unit 3744

  
**CHERYL TYLER**

**SUPERVISORY PATENT EXAMINER**

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